

2.3 Solving Linear Equations

Sandy's Boat House rents canoes. The equation $c = 0.15t + 2.50$ gives the charge c in dollars for renting a canoe for t minutes.

Getting Ready for Problem 2.3

- Explain what the numbers in the equation $c = 0.15t + 2.50$ tell you about the situation.
- Rashida and Serena apply for jobs at Sandy's. The manager tests them with three questions.

What is the charge for renting a canoe for 30 minutes?

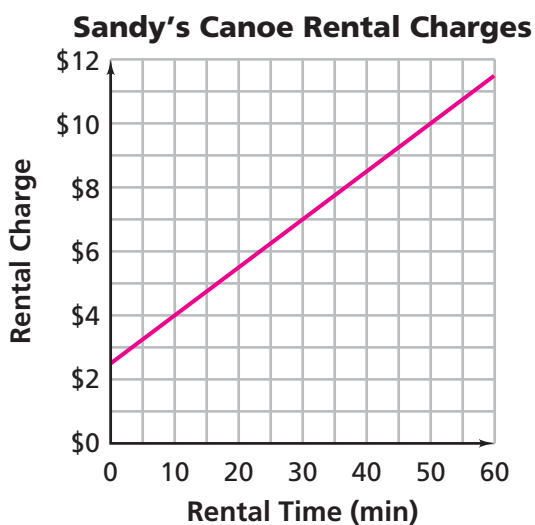
A customer is charged \$8.50. How long did he use the canoe?

A customer has \$10 to spend. How long can she use a canoe?

Suppose you were applying for a job at Sandy's. How would you answer these questions?

Problem 2.3 Solving Linear Equations

- A.** Rashida uses a graph of $c = 0.15t + 2.50$. Explain how to use the graph to estimate the answers to the manager's questions.



- B.** Rashida could use a table instead of a graph. Explain how to use a table to estimate answers to the questions.
- C.** Serena wants to find exact answers, not estimates. For the second question, she solves the linear equation $0.15t + 2.50 = 8.50$. She reasons as follows:
- If $0.15t + 2.50 = 8.50$, then $0.15t = 6.00$.
 - If $0.15t = 6.00$, then $t = 40$.
 - I check my answer by substituting 40 for t : $0.15(40) + 2.50 = 8.50$
- Is Serena correct? How do you know?
- D.** For the third question, Rashida says, “She can use the canoe for 50 minutes if she has \$10.” Serena says there are other possibilities—for example, 45 minutes or 30 minutes. She says you can answer the question by solving the **inequality** $0.15t + 2.50 \leq 10$. This inequality represents the times for which the rental charge is *at most* \$10.
1. Use a table, a graph, and the equation $0.15t + 2.50 = 10$ to find all of the times for which the inequality is true.
 2. Express the solution as an inequality.
- E.** River Fun Paddle Boats competes with Sandy’s. The equation $c = 4 + 0.10t$ gives the charge in dollars c for renting a paddle boat for t minutes.
1. A customer at River Fun is charged \$9. How long did the customer use a paddle boat? Explain.
 2. Suppose you want to spend \$12 at most. How long could you use a paddle boat? Explain.
 3. What is the charge to rent a paddle boat for 20 minutes? Explain.

